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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/553,365	10/14/2005	Amit Dutta	884A.0110.U1(US)	9079
29683 7590 09/30/2009 HARRINGTON & SMITH, PC 4 RESEARCH DRIVE, Suite 202 SHELTON, CT 06484-6212				
EXAMINER NGUYEN, LUONG TRUNG				
ART UNIT 2622		PAPER NUMBER		
MAIL DATE 09/30/2009		DELIVERY MODE PAPER		

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

### Office Action Summary

**Application No.**

10/553,365

**Applicant(s)**

DUTTA ET AL.

**Examiner**

LUONG T. NGUYEN

**Art Unit**

2622

**Period for Reply** -- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 17 August 2009.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-11 and 14-18 is/are pending in the application.
- 4a) Of the above claim(s) 4-9 is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-3, 10-11, 14-18 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-8508)
- 4) ☐ Interview Summary (PTO-413)
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: \_\_\_\_\_
- Paper No(s)/Mail Date \_\_\_\_\_

**DETAILED ACTION**

***Continued Examination Under 37 CFR 1.114***

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(c), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(c) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 08/17/2009 has been entered.

***Election/Restrictions***

2. Applicant's election with traverse of Species I (Figures 2-3) reads on claims 1-3, 10-14 in the reply filed on 07/17/2008 is acknowledged.
3. Claims 4-9 are withdrawn from further consideration pursuant to 37 CFR 1.142(b), as being drawn to a nonelected Species, there being no allowable generic or linking claim. Applicant timely traversed the restriction (election) requirement in the reply filed on 07/17/2008.

***Response to Arguments***

4. Applicant's arguments filed on 07/13/2009 have been fully considered but they are not persuasive.

In re pages 7-8, Applicants argue that Haavisto does not disclose an application processor including a CPU and hardware arranged to perform camera image processing. As pointed out by the examiner, Fig. 3 of Haavisto illustrates an image processing module 316 and a separate 314

processor. However there is no disclosure or suggestion that these could be integrated into a single application processor. Having the CPU that controls the operation of the telephone and the image processing hardware in a single application processor is a new and non-obvious feature.

In response to applicant's argument that the references fail to show certain features of applicant's invention, it is noted that the features upon which applicant relies (*i.e., the CPU that controls the operation of the telephone and the image processing hardware integrated into a single application processor, which implies a single chip application processor*) are not recited in the rejected claim(s). Although the claims are interpreted in light of the specification, limitations from the specification are not read into the claims. See *In re Van Geuns*, 988 F.2d 1181, 26 USPQ2d 1057 (Fed. Cir. 1993).

Further, it is critical to note that the PTO must give claim words their broadest reasonable meaning in their ordinary usage, as understood by one of ordinary skill in the art. **In re Morris**, 127 F.3d 1048, 44 USPQ2d 1023 (Fed. Cir. 1997). In this case, regarding claim 1, the Examiner still considers that Haavisto does disclose limitation "an application processor including both a CPU for controlling the operation of the telephone and hardware arranged to perform arranged to perform camera image processing on the digital data in RAW format received from the camera module," in which "an application processor" corresponds to electronic device 302 (figure 3, column 4, paragraph [0010]); "a CPU for controlling the operation of the telephone" corresponds to processor 314 (figure 3, column 4, paragraphs [0010], [0012]), and "hardware" corresponds to an image processor 316 (figure 3, columns 4-5, paragraphs [0012] – [0013]).

In re page 9, Applicants argue that “the examiner maintains that Hsu discloses an SIMD which is a type of program accelerator. However the applicants maintain that it would not be obvious to combine the teachings of the two references because there would be no motivation to combine the teachings of the two documents.”

In response to applicant's argument that there is no suggestion to combine the references, the examiner recognizes that obviousness can only be established by combining or modifying the teachings of the prior art to produce the claimed invention where there is some teaching, suggestion, or motivation to do so found either in the references themselves or in the knowledge generally available to one of ordinary skill in the art. See *In re Fine*, 837 F.2d 1071, 5 USPQ2d 1596 (Fed. Cir. 1988) and *In re Jones*, 958 F.2d 347, 21 USPQ2d 1941 (Fed. Cir. 1992). In this case, since Hsu discloses a SIMD (page 9, lines 27-29), it would have been obvious to one of ordinary skill in the art at the time the invention to modify the device in Haavisto by the teaching of Hsu et al. in order to perform function such as addition, subtraction, multiplication, etc..., with the same instruction. This reduces processing time of image processing.

In re page 10, Applicants argue that it is only with hindsight knowledge of the invention that a combination of Haavisto and Hsu would be considered.

In response to applicant's argument that the examiner's conclusion of obviousness is based upon improper hindsight reasoning, it must be recognized that any judgment on obviousness is in a sense necessarily a reconstruction based upon hindsight reasoning. But so

long as it takes into account only knowledge which was within the level of ordinary skill at the time the claimed invention was made, and does not include knowledge gleaned only from the applicant's disclosure, such a reconstruction is proper. See *In re McLaughlin*, 443 F.2d 1392, 170 USPQ 209 (CCPA 1971).

***Claim Rejections - 35 USC § 112***

5. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

6. Claims 14-18 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 14 (line 10) recites the limitation “the” in “the application processor”. There is insufficient antecedent basis for this limitation in the claim.

Claims 15-18 are rejected as being dependent from claim 14.

***Claim Rejections - 35 USC § 103***

7. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

8. Claims 1-3, 10, 14-17 are rejected under 35 U.S.C. 103(a) as being unpatentable over Haavisto (EP 1215894) in view of Hsu et al. (WO 01/01675).

Regarding claim 1, Haavisto discloses an apparatus comprising:

a camera module (camera module 301, figure 3, column 4, paragraphs [0010] – [0011]) for capturing an image and providing digital data in an RAW format;  
an application processor (i.e., an electronic device 302, figure 3, column 4, paragraph [0010]) including both a CPU (processor 314, figure 3, column 4, paragraphs [0010], [0012]) for controlling the operation of a telephone and hardware (i.e., an image processor 316, figure 3, columns 4-5, paragraphs [0012] – [0013]) arranged to perform arranged to perform camera image processing on the digital data in RAW format received from the camera module,  
wherein the apparatus is a mobile camera telephone (device 300, which comprises electronic device 302 and camera module 301, figure 3, column 4, paragraph [0010])

Haavisto fails to specifically disclose wherein the application processor includes a programmable hardware accelerator, and the programmable hardware accelerator is a SIMD processing accelerator optimized for camera image processing. However, Hsu discloses a video camera with major function implemented in host software, which can be embodied in any microprocessor capable of single instruction multiple data (SIMD) execution, which corresponds to programmable hardware accelerator (page 9, lines 27-29). Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention to modify the device in Haavisto by the teaching of Hsu et al. in order to perform function such as addition, subtraction, multiplication, etc..., with the same instruction. This reduces processing time of image processing.

Regarding claims 2, 15, Haavisto discloses wherein the camera module comprises optics, an image sensor and an analogue to digital converter only, and is without image processing facility (figure 3, column 4, paragraph [0010]).

Regarding claims 3, 16, Haavisto discloses wherein the digital data is the digitized output of an image sensor (column 4, paragraph [0010]).

Regarding claims 10, 17, Haavisto discloses the application processor is a system on chip (figure 3, column 4, paragraph [0010]).

Regarding claim 14, Haavisto discloses a method of comprising:  
  
capturing an image in a first camera component of the mobile camera telephone  
(capturing an image by camera module 301, figure 3, column 4, paragraph [0010]);

sending digital data in an RAW format from the first camera component to a second application processing component of the mobile camera telephone (image data is transferred from camera module 301 to an electronic device 302, figure 3, paragraphs [0010] - [0013]); and, in the second application processing component, both image processing the digital data in RAW format to produce an image for viewing and controlling the storage of the image in the mobile camera telephone (an image processing 314 for processing image data; the processed image data



is transferred to display 317 for viewing or to memory 315 for storing, figure 3, paragraphs [0010] – [0013]),

wherein the application processor (i.e., an electronic device 302, figure 3, column 4, paragraph [0010]) including both a CPU (processor 314, figure 3, column 4, paragraphs [0010], [0012]) and hardware (i.e., an image processor 316, figure 3, columns 4-5, paragraphs [0012] – [0013]), wherein the CPU is configured to control the operation of a telephone (processor 314, figure 3, column 4, paragraphs [0010], [0012]).

Haavisto fails to specifically disclose wherein the application processor includes a programmable hardware accelerator, and the programmable hardware accelerator is a SIMD processing accelerator optimized for camera image processing. However, Hsu discloses a video camera with major function implemented in host software, which can be embodied in any microprocessor capable of single instruction multiple data (SIMD) execution, which corresponds to programmable hardware accelerator (page 9, lines 27-29). Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention to modify the device in Haavisto by the teaching of Hsu et al. in order to perform function such as addition, subtraction, multiplication, etc..., with the same instruction. This reduces processing time of image processing.

9. Claims 11 and 18 are rejected under 35 U.S.C. 103(a) as being unpatentable over Haavisto (EP 1215894) in view of Hsu et al. (WO 01/01675) further in view of Obrador (US 2004/0090548).

Regarding claims 11 and 18, Haavisto and Hsu et al. fail to specifically disclose wherein the application processor includes a hard-wired pipeline processor for the camera image processing. However, Obrador discloses an image capture system 10, which utilizes only one hardware processing pipeline 36 (figure 4, paragraphs [0020] – [0021]). Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention to modify the device in Haavisto and Hsu et al. by the teaching of Obrador in order to obtain an apparatus, which utilizes a hardware processing pipeline to support a still image processor and a video processor.

### *Conclusion*

10. Any inquiry concerning this communication or earlier communications from the examiner should be directed to LUONG T. NGUYEN whose telephone number is (571)272-7315. The examiner can normally be reached on 7:30AM - 5:00PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, DAVID L. OMETZ can be reached on (571) 272-7593. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/L. T. N./  
Examiner, Art Unit 2622  
09/28/09